II.   Prior Art Rejections

Claims 1-9 and 11-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over

"Three Dimensional Object Recognition", Besl et al., Computing Surveys, Vol. 17, No. 1, March

1985 (hereinafter "Besl") in view of U.S. Patent No. 5,740,341 to Oota et al. (hereinafter "Oota")

or "Reconstruction of 3D virtual Buildings from 2D Architectural Floor Plans", So et al., VRST

'98, ACM 1-58113-018/98/0011, ACM 1998 (hereinafter "So"). Applicant respectfully

traverses in view of the following comments.

A.   There is no motivation to combine Besl and Oota or Besl and So

The Examiner alleges that it would have been obvious to combine the references "to

realize the elements of the claimed invention" (*see* page 5 of the Office Action). The Examiner

further maintains that an artisan would have known to turn to the prior art, and knowingly

modify the teachings of Besl, with the teachings of Oota or So (or vise versa) to realize the

claimed elements of the present invention while gaining the advantages of reduced cost and

development time (*see* page 6 of the Office Action).

Applicant respectfully submits that the provided motivation of combining Best and Oota

or So is unclear and not understood by the Applicant. **Most if not all inventions arise from a**

combination of old elements. *In re Kotzab*, 55 USPQ2d at 1316 (*citing In re Rouffet*, 149 F.3d

1350, 1357, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998). Thus, every element of a claimed

invention may often be found in the prior art. *Id.* However, identification in the prior art of each

individual part claimed is insufficient to defeat patentability of the whole claimed invention. *Id.*

Rather, to establish obviousness based on a combination of the elements disclosed in the prior

art, there must be some motivation, suggestion or teaching of the desirability of making the

specific combination that was made by the applicant. MPEP § 2143.01 and § 2145; *In re Kotzab*, 55 USPQ2d at 1316 (*citing In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); and *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)).

Besl relates to a computer vision system that is capable of recognizing 3-D object (*see* Abstract and page 81). Oota and So are unrelated to the field of image recognition and instead address the design of the three-dimensional arrangement from system design information of plant components (col. 1, line 65 to col. 2, line 8 of Oota and page 17 of So). For example, Oota relates to the stage of design and production of a system (col. 2, lines 3 to 21). In other words, in Oota and So, no real system exists to which the image recognition could have or would have been applied. That is, one of ordinary skill in the art confronted with the problem of improving a design of a non-existing system (as Oota and So) would never have turned to Besl.

Similarly, one of ordinary skill in the art confronted with the problem of image recognition would never have turned to Oota and So, as they clearly do not help to improve image recognition. That is, one of ordinary skill in the art confronted with the image recognition technique of Besl would never have turned to the references such as Oota or So.

The Examiner alleges that combining the two references (Besl and Oota or Besl and So) would reduce cost and development time. However, how would image recognition as taught by Besl reduce cost and development time of a technique that designs a non-existing system such as Oota (Fig. 2, col. 5, lines 15 to 60)? Similarly, how would a CAD design system such as the one taught by Oota reduce the cost and development of an image recognition system such as the one taught by Besl? Indeed, Besl and Oota and So address different problems and are from different

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fields of endeavor. Applicant respectfully submits that there is no motivation to combine these very different references.

In fact, the only motivation to combine the references is to somehow meet the unique features of the present invention. Applicant respectfully submits that the references cannot and would not be combined without improper exercise of hindsight. A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. *See In re Kotzab*, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000) (*citing In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999)). Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome **wherein that which only the invention taught is used against its teacher**," (emphasis added). *Kotzab*, 55 USPQ2d at 1316 (*quoting W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983)); MPEP § 2143.

For instance, it is alleged that a skilled artisan tasked with developing a system requiring object (component) recognition from pictures and virtual modeling of building components would have turned to Besl and Oota or So to realize the claimed elements (*see* pages 5 and 6 of the Office Action). However, neither Oota nor So deal with object recognition for virtual modeling of building components. Besl addresses nothing but image recognition. That is, Applicant's disclosure is being used against the teacher. That is, it is Applicant's disclosure that broadly discloses generating a virtual installation model based on the image of the real

installation. In short, it is respectfully submitted that but for the present invention there is no motivation to combine the references in the manner suggested by the Examiner.

B.   *The combined teachings of Besl and Oota or Besl and So do not meet all of the unique features of the independent claim 1.*

Furthermore, even if Besl and Oota or So are somehow combined, the combined teachings do not teach or suggest all of the unique features of claim 1. Claim 1, among a number of unique features, recites: "an evaluation-and-control-unit for comparing the information data of the installation components with the picture data of the real installation, for identifying identified components in the picture data as respective ones of the installation components, for deriving hypotheses regarding the identified components in the picture data, and for assigning the respective identified ones of the installation components to the virtual installation model."

The Examiner alleges that Besl in view of Oota or So render obvious the claimed features of the evaluation-and-control-unit set forth in claim 1. Applicant respectfully disagrees.

Comparison: the Examiner alleges that Besl discloses comparing the installation components with the picture data of the real installation component (*see* page 4 of the Office Action). However, Applicant respectfully submits that in Besl, there is no comparison of the component to the picture data. If anything, Besl <u>teaches away from comparing a component to an actual picture data</u>. That is, Besl discloses that matching model data to the sensor data would take an enormous amount of processing time, even for the simplest scenes. A better algorithm is needed (page 81, lines 1 to 21). Besl further suggests, instead of such comparison, to use a symbolic scene description domain (Fig. 3; page 81, lines 22 to 50). In short, Besl fails to teach or suggest comparing as set forth in claim 1. Oota or So do not cure the deficient teachings of Besl, as explained in greater detail below.

Assigning: The Office Action fails to identify where Besl discloses assigning the

respective identified ones of the installation components to the virtual installation model (*see*

page 4 of the Office Action). Applicant respectfully submits that Besl does not teach or suggest

assigning identified components to a virtual model. In fact, Besl only discloses reconstructing

the visual representation of the object based on the sensor data, § 5.7. In short, Applicant

respectfully submits that Besl fails to teach or suggest assigning, as set forth in claim 1.

Furthermore, as acknowledged by the Examiner, Besl fails to teach or suggest the real

installation and installation components as set forth in claim 1 (*see* page 4 of the Office Action).

Oota and So fail to cure the above-identified deficiencies of Besl and the deficiencies noted by

the Examiner.

Oota discloses a design and production supporting system for component <u>arrangement</u>

<u>and routing</u> comprising a three-dimensional (3-D) component mapping means based on two-

dimensional logical connection information of plant components and 3-D arrangement space

information. To the 3-D component mapping means, an interactive mapping means and an

automatic mapping means are provided. The interactive mapping means has a means for

displaying the components arranged on the assigned plane of the arrangement space in the 3-D

space keeping <u>connection relationship among the components</u> and a means for interactively

moving these components in the arrangement space with keeping connection relationship among

the components by using the dragging method (*see* Abstract and col. 2, lines 9 to 21).

As explained above, in Oota, there is <u>no picture data of the real installation</u>. Instead,

Oota discloses using <u>system design information</u> *e.g.*, *see* field of the invention (Oota relates to a

CAD system which integrate steps from planning and basic designing steps to construction and

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manufacturing steps). In fact, Oota deals with mapping a two dimensional connection

information into a three-dimensional connection information, and fails to teach or suggest having

picture data of the real installation component. Moreover, Oota clearly fails to teach or suggest

comparing installation components with picture data and assigning the identified installation

components to the virtual installation model. Accordingly, Oota does not cure the deficient

teachings of Besl.

Similarly, So is related to reconstructing from the 2-D architectural drawings to a 3D

virtual model (*see* Abstract). As such, in So, there is no picture data of the real installation.

Moreover, So fails to teach or suggest comparing installation components with picture data of

real installation and assigning the identified installation components to the virtual installation

model. Accordingly, So does not cure the deficient teachings of Besl.

Therefore, an evaluation-and-control-unit, as set forth in claim 1 is not suggested or

taught by the combined teachings of Besl and Oota or So, which lack at least comparing

installation components to a picture data of the real installation system and assigning the

respective identified installation components to a virtual installation model. Together, the

combined teachings of these references, taken alone or *in any conceivable combination*, do not

teach or suggest the above-identified features of claim 1. For at least these exemplary reasons,

the proposed combination of Besl and Oota or So fails to render obvious independent claim 1.

C.   *Conclusory Remarks*

Based on the formulation of this rejection (*i.e.*, no mapping of the claimed elements to the

prior art references, summarizing and broadly addressing the claimed subject matter as opposed

to specifically addressing each of the claimed features), it appears that the Office Action is

attempting to reduce the subject matter claimed in the present applicant to an idea, and to analyze

patentability with respect to an idea. This mode of analysis is inappropriate for several reasons.

During examination, ***all claim limitations*** must be considered. Ex parte Peterson, 228 U.S.P.Q.

216, 217 (Pat. Off. Bd. App. 1985). Furthermore, it is improper to reduce the claimed invention

to an "idea" and then determine the patentability of that idea rather than of the invention as

claimed. Jones v. Hardy, 220 U.S.P.Q. 1021, 1024 (Fed. Cir. 1984). Each claim limitation must

be considered. "A disregard of claim limitations, as here, would render claim examination in the

PTO meaningless." Panduit Corp. v. Dennison Mfg. Co., 1 USPQ2d 1593, 1603 (Fed. Cir.

1987)(Markey, Ch.J.).

Accordingly, Applicant respectfully submits that the Office Action does not present a

prima facie case of obviousness, and the burden remains with the Patent Office to either

affirmatively demonstrate why the Applicant is not entitled to a patent or issue an allowance of

the application.

D.   *Claims 2-9 and 11-26*

Claims 2-9, 11, and 12 are patentable at least by virtue of their dependency on claim 1.

In addition, dependent claim 2 recites: "wherein the evaluation-and-control unit is

configured to perform an image analysis of data selected from the group consisting of...current

state data of the virtual installation model." It is Applicant's position that the combined

teachings of Besl and Oota or So fail to teach or suggest image analysis of the current state of the

virtual installation model as set forth in claim 2. For at least this additional reason, dependent

claim 2 is patentable over the combined teachings of Besl and Oota or So.

Moreover, dependent claim 4 recites: "a display device to display three views, wherein a first view of the three views displays the real installation based on the picture data; wherein a second view of the three views displays the information data of the installation components of the component library; and wherein a third view of the three views displays the virtual installation model." The Examiner alleges that Oota discloses the views in Figs. 11(1) to 11(3) (*see* page 6 of the Office Action). Oota, however, only discloses in Fig. 11(1) building information on a variety of planes (col. 15, lines 40 to 55), Fig. 11(2) building information on cell basis (col. 15, line 58 to col. 16, line 8), and Fig. 11(3) allocated and unallocated building space (col. 15, lines 8 to 13). This, however, has nothing to do with the display views of the real installation based on picture data, of installation components if the component library, and of the virtual installation model, as set forth in claim 4. It is Applicant's position that the combined teachings of Besl, Oota or So fail to teach or suggest the unique features of claim 4. For at least this additional reason, dependent claim 4 is patentable over the combined teachings of these references.

Moreover, claim 6 recites: "wherein the evaluation-and-control-unit is configured to evaluate geometric properties of the picture data in order to reconcile the selected and dragged installation component with the identified installation components identified in the picture data of the real installation, and wherein, after a successful reconciliation, the selected and dragged installation component is assigned to a respective one of the identified installation components" and dependent claim 7 recites "wherein the evaluation-and-control-unit is configured to evaluate structural information of the installation components, in order to assign the installation components to the picture data of the real installation." No reconciliation or assignment as set

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forth in the dependent claims 6 and 7 is disclosed by Besl in combination with Oota or So. For

at least these additional reasons, claims 6 and 7 are patentable over the combined teachings of

Besl and Oota or So.

Furthermore, for analogous reasons as those discussed above in regard to claim 1, the

proposed combination of references fails to teach or suggest the unique features of independent

claim 13 and independent claim 25. Claims 14-24 and 26 are patentable at least by virtue of

their dependency on claims 13 and 25, respectively.

III.   Conclusion

In view of the above, reconsideration and allowance of this application are now believed

to be in order, and such actions are hereby solicited. If any points remain in issue, the Examiner

is respectfully requested to contact the undersigned attorney at the telephone number listed

below.

The USPTO is directed and authorized to charge all required fees, except for the Issue

Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any

overpayments to said Deposit Account.

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